What is claimed is:

1. Transparent fused crystalline ceramic comprising in a range from 45 to 80 percent by weight Al_2O_3 and in a range from 55 to 20 percent by weight ZrO_2, based on the total weight of the transparent fused crystalline ceramic.

2. Transparent fused polycrystalline ceramic comprising in a range from 45 to 80 percent by weight Al_2O_3 and in a range from 55 to 20 percent by weight ZrO_2, based on the total weight of the transparent fused crystalline ceramic.

3. The transparent fused polycrystalline ceramic according to claim 2 comprising collectively at least 80 percent by weight Al_2O_3 and ZrO_2, based on the total weight of the transparent fused polycrystalline ceramic.

4. The transparent fused polycrystalline ceramic according to claim 2 comprising collectively at least 90 percent by weight Al_2O_3 and ZrO_2, based on the total weight of the transparent fused polycrystalline ceramic.

5. The transparent fused polycrystalline ceramic according to claim 2 comprising Al_2O_3 in a range from 50 to 70 percent by weight and ZrO_2 in a range from 50 to 30 percent by weight, based on the total weight of the fused polycrystalline ceramic.

6. The transparent fused polycrystalline ceramic according to claim 2 comprising laminae, wherein the laminae have thicknesses less than 250 nanometers.

7. The transparent fused polycrystalline ceramic according to claim 2, wherein the material in the form of a particle.

8. A plurality of particles according to claim 7.

9. The particles according to claim 8 having particle sizes in a range from 1 micrometer to 2000 micrometers.

10. The particles according to claim 2, wherein the fused polycrystalline, eutectic alumina-zirconia material comprises laminae, and wherein the laminae have thicknesses less than 250 nanometers.

11. A method of making the plurality of transparent fused polycrystalline ceramic particles according to claim 8, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2, based on the total weight of the melt;

shaping the melt into precursor particles; and

cooling the precursor particles to directly provide the transparent fused polycrystalline ceramic particles.

12. The method according to claim 11, wherein the flame forming is conducted at no more than 2500°C.

13. The method according to claim 11, wherein the transparent fused polycrystalline ceramic comprises laminae, and wherein the laminae have thicknesses less than 250 nanometers.

14. A method of making the plurality of transparent fused polycrystalline ceramic particles according to claim 8, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2, based on the total weight of the melt;

cooling the melt to provide transparent fused polycrystalline ceramic;

crushing the transparent fused polycrystalline ceramic material to provide the transparent fused polycrystalline ceramic particles.

15. The method according to claim 14 wherein the flame forming is conducted at no more than 2500°C.

16. A method of making the transparent fused polycrystalline ceramic according to claim 8, the method comprising:

flame forming a melt, the melt comprising Al_2O_3 and ZrO_2 collectively at least 65 percent by weight Al_2O_3 and ZrO_2, based on the total weight of the melt; and

cooling the melt to directly provide the transparent fused polycrystalline ceramic.

17. The method according to claim 16, wherein the flame forming is conducted at no more than 2500°C.

18. The method according to claim 16, wherein the fused polycrystalline, eutectic alumina-zirconia material comprises laminae, and wherein the laminae have thicknesses less than 250 nanometers.